

### **Amendments to the Claims**

1. (Currently amended) An apparatus for controlling a permanent-magnet rotary machine having a permanent magnet and an armature respectively in a rotor and a stator, comprising:

magnetic pole position detecting means for detecting a magnetic pole position of said rotor;

correcting quantity determining means for determining a magnetic pole position correcting quantity to correct the magnetic pole position detected by said magnetic pole position detecting means; and

current control means for controlling an armature current flowing through said armature while controlling the phase of an armature voltage to be applied to said armature depending on the magnetic pole position of said rotor depending on the magnetic pole position which is produced by correcting the magnetic pole position detected by said magnetic pole position detecting means with the magnetic pole position correcting quantity determined by said correcting quantity determining means;  
and

~~correcting quantity determining means for performing a dq vector control process to control said permanent magnet rotary machine in a dq coordinate system which has a d-axis representing the direction of a magnetic field of said rotor and a q-axis representing a direction perpendicular to said d-axis while said rotor is rotating and said armature current is substantially zero, and determining a magnetic pole position correcting quantity to correct the magnetic pole position detected by said magnetic pole~~

~~position detecting means so that a d-axis voltage command value determined by said dq-vector control process will be substantially zero;~~

~~said current control means comprising means for controlling the phase of said armature voltage with a magnetic pole position which is produced by correcting the magnetic pole position detected by said magnetic pole position detecting means with the magnetic pole position correcting quantity determined by said correcting quantity determining means~~

said correcting means quantity determining means comprising means for performing a dq vector control process which has a d-axis representing the direction of a magnetic field of said rotor and a q-axis representing a direction perpendicular to said d-axis while said rotor is rotating and a command values for both the d-axis current and the q-axis current are being held at zero in said dq vector control process by setting said magnetic pole position correcting quantity to a predetermined temporary setting value, and determining a true value of said magnetic pole position correcting quantity according to a predetermined equation where only a d-axis voltage command value and a q-axis voltage command value are the variables based on the d-axis voltage command value and the q-axis voltage command value which are determined when said dq vector control process is performed,

said permanent-magnet rotary machine comprising a rotary machine mounted on a vehicle for generating a propulsive force for propelling the vehicle, and

said correcting quantity determining means comprising means for performing a process of determining said magnetic pole position correcting quantity

while said vehicle is running idly with no torque generated by said permanent-magnet rotary machine.

2. (Canceled).

3. (Canceled).

4. (Currently amended) An apparatus according to ~~any one of claims~~ claim 1 through 3, wherein said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when said rotor rotates at a rotational speed which is equal to or lower than a predetermined speed.

5. (Currently amended) An apparatus according to ~~any one of claims~~ claim 1 through 3, wherein said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when said rotor rotates at a rotational speed which is substantially constant.

6. (Currently amended) An apparatus according to ~~any one of claims~~ claim 1 through 3, wherein said permanent-magnet rotary machine comprises a rotary machine mounted on a vehicle for generating a propulsive force for propelling the vehicle, and said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when the production of said vehicle is completed or said vehicle is inspected for maintenance.

7. (Canceled).

8. (Canceled).

9. (Canceled).

10. (New) An apparatus for controlling a permanent-magnet rotary machine having a permanent magnet and an armature respectively in a rotor and a stator, comprising:

magnetic pole position detecting means for detecting a magnetic pole position of said rotor;

correcting quantity determining means for determining a magnetic pole position correcting quantity to correct the magnetic pole position detected by said magnetic pole position detecting means; and

current control means for controlling an armature current flowing through said armature while controlling the phase of an armature voltage to be applied to said armature depending on the magnetic pole position of said rotor depending on the magnetic pole position which is produced by correcting the magnetic pole position detected by said magnetic pole position detecting means with the magnetic pole position correcting quantity determined by said correcting quantity determining means; and

correcting quantity determining means for performing a dq vector control process to control said permanent-magnet rotary machine in a dq coordinate system which has a d-axis representing the direction of a magnetic field of said rotor and a q-axis representing a direction perpendicular to said d-axis while said rotor is rotating and said armature current is substantially zero, and determining a magnetic pole position correcting quantity to correct the magnetic pole position detected by said magnetic pole position detecting means so that a d-axis voltage command value determined by said dq vector control process will be substantially zero,

said current control means comprising means for controlling the phase of said armature voltage with a magnetic pole position which is produced by correcting the magnetic pole position detected by said magnetic pole position detecting means with the magnetic pole position correcting quantity determined by said correcting quantity determining means,

said correcting quantity determining means comprising means for performing a dq vector control process which has a d-axis representing the direction of a magnetic field of said rotor and a q-axis representing a direction perpendicular to said d-axis while said rotor is rotating and a command values for both the d-axis current and the q-axis current are being held at zero in said dq vector control process by setting said magnetic pole position correcting quantity to a predetermined temporary setting value, and determining a true value of said magnetic pole position correcting quantity according to a predetermined equation where only a d-axis voltage command value and a q-axis voltage command value are the variables based on the d-axis voltage command value and the q-axis voltage command value which are determined when said dq vector control process is performed,

said permanent-magnet rotary machine comprising a rotary machine mounted on a vehicle for generating a propulsive force for propelling the vehicle, and

said correcting quantity determining means comprising means for performing a process of determining said magnetic pole position correcting quantity while said engine is operating with no torque generated by said permanent-magnet rotary machine.

11. (New) An apparatus according to claim 10, wherein said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when said rotor rotates at a rotational speed which is equal to or lower than a predetermined speed.

12. (New) An apparatus according to claim 10, wherein said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when said rotor rotates at a rotational speed which is substantially constant.

13. (New) An apparatus according to claim 10, wherein said permanent-magnet rotary machine comprises a rotary machine mounted on a vehicle for generating a propulsive force for propelling the vehicle for generating a propulsive force for propelling the vehicle, and said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when the production of said vehicle is completed or said vehicle is inspected for maintenance.

14. (New) An apparatus for controlling a permanent-magnet rotary machine having a permanent magnet and an armature respectively in a rotor and a stator, comprising:

magnetic pole position detecting means for detecting a magnetic pole position for said rotor;

correcting quantity determining means for determining a magnetic pole position correcting quantity to correct the magnetic pole position detected by said magnetic pole position detecting means; and

current control means for controlling an armature current flowing through said armature while controlling the phase of an armature voltage to be applied to said armature depending on the magnetic pole position of said rotor depending on the magnetic pole position which is produced by correcting the magnetic pole position detected by said magnetic pole position detecting means with the magnetic pole position correcting quantity determined by said correcting quantity determining means; and

correcting quantity determining means for performing a dq vector control process to control said permanent-magnet rotary machine in a dq coordinate system which has a d-axis representing the direction of a magnetic field of said rotor and a q-axis representing a direction perpendicular to said d-axis while said rotor is rotating and said armature current is substantially zero, and determining a magnetic pole position correcting quantity to correct the magnetic pole position detected by said magnetic pole position detecting means so that a d-axis voltage command value determined by said dq vector control process will be substantially zero;

said current control means comprising means for controlling the phase of said armature voltage with a magnetic pole position which is produced by correcting the magnetic pole position detected by said magnetic pole position detecting means with the magnetic pole position correcting quantity determined by said correcting quantity determining means,

said correcting quantity determining means comprising means for performing a dq vector control process which has a d-axis representing the direction of a magnetic field of said rotor and a q-axis representing a direction perpendicular to said

d-axis while said rotor is rotating and a command values for both the d-axis current and the q-axis current are being held at zero in said dq vector control process by setting said magnetic pole position correcting quantity to a predetermined temporary setting value, and determining a true value of said magnetic pole position correcting quantity according to a predetermined equation where only a d-axis voltage command value and a q-axis voltage command value are the variables based on the d-axis voltage command value and a q-axis voltage command value are the variables based on the d-axis voltage command value are the variables based on the d-axis voltage command value and the q-axis voltage command value which are determined when said dq vector control process is performed,

said permanent-magnet rotary machine comprising a rotary machine mounted on a vehicle for generating a propulsive force for propelling the vehicle, and

said correcting quantity determining means comprising means for performing a process of determining said magnetic pole position correcting quantity while said engine is idling with no torque generated by said permanent-magnet rotary machine.

15. (New) An apparatus according to claim 14, wherein said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when said rotor rotates at a rotational speed which is equal to or lower than a predetermined speed.

16. (New) An apparatus according to claim 14, wherein said correcting quantity determining means comprises means for determining said magnetic pole



position correcting quantity when said rotor rotates at a rotational speed which is substantially constant.

17. (New) An apparatus according to claim 14, wherein said permanent-magnet rotary machine comprises a rotary machine mounted on a vehicle for generating a propulsive force for propelling the vehicle for generating a propulsive force for propelling the vehicle and said correcting quantity determining means comprises means for determining said magnetic pole position correcting quantity when the production of said vehicle is completed or said vehicle is inspected for maintenance.